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ABSTRACT

Reported is a study of the effectiveness of the Individually Prescribed Instructional (IPI) system. The purpose was to assess the levels of self-initiation, direction, and evaluation for differently treated pupils. Samples were comprised of the pupils and teachers from eight IPI and eight control schools. Fourth-through sixth-grade students were referred to as middle level pupils and third-grade students, as early pupils. The instruments used included: the teachers' checklist, the middle level pupil opinion form, and the early pupil form. Parents of fourth- and fifth-grade students also completed an opinionnaire. Results obtained showed that teachers' perception of teaching roles and teacher-pupil interaction was almost identical between the IPI and control groups. The IPI teachers had a significantly different positive attitude toward teacher aides. The IPI pupils were found to be more motivated, self-directed, and independent than control pupils on the parents' opinionnaire. Middle level IPI pupils had significantly higher scores on measures of creative tendency, self-concept, and attitude toward school than control pupils. For early pupils, the control group had a higher attitude toward school while the IPI group had a higher self-concept. Effects of IPI were not apparent at the lower level grade. (CC)

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INTRODUCTION

The child's perception of himself as a worthwhile member of society is greatly affected by the school. As Coleman (1966) said of the child's social expectations, "...the direction such an attitude takes may be associated with the pupils' school experience as well as his experience in the larger community." The Individually Prescribed Instructional system is designed to maximize the school experience for each child by minimizing the instance of failure and giving the child control of the learning situation.

To a great extent, the school experience is marked by the pupils' success or failure. Bloom (1971) noted, "An individual develops a positive self-regard and a strong ego by continual evidence of his adequacy - - - especially in early childhood and in the periods of latency (ages 6-11) and adolescence. Since the school period (ages 6-18) occupies these latter two periods, we regard continual evidence of success or failure in the school as having major effects on the individual's mental health." He further stated, "There is considerable empirical support for relating the individual's perception of this adequacy in school learning to the development of related interest, attitude, and self-concept."

Just as the child judges his adequacy in terms of success or failure, he also judges in terms of control. The worthwhile person is in control of his environment; less control means less self-worth. Anderson (1961) emphasized, "The use of power over a student is first an expression of lack of respect, or of confidence, in the person over whom it is used. It in turn becomes a source of anxiety in the student,

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an indicator of defenses, and hence a degrading of quality of behavior of which the student is capable. The predicted outcome of this cultural domination is loss of 'motivation' and revolt, or conformity, submission and psychic atrophy."

Hutchinson (1963) found that highly creative pupils had only minimal opportunity to use their creative potential in the typical classroom. He showed that the teacher was the controlling factor and that the major questions were how she perceived the pupils and to whom she geared the instruction. Thus the pupil is an object of control rather than a source of control in the traditional classroom.

Vaughn (1969) took an extreme position:

"One thing made clear by these random and often unrelated insights is that our traditional programs in education are effective instruments of our authoritarian society and antithetical to the development of creativity, and that they have been effective and efficient in producing quiet, orderly, and courteous children, rather than flexible, sensitive, and courageous individuals.

If, indeed, our present need in education is to increase the quality of a student's knowledge, then the process by which a student comes to know becomes as important as the amount of knowledge gained. The emphasis in the educational process should be on the development of mature, sensitive, and responsible individuals."

However, there are reasonable guidelines which an innovative curriculum can incorporate to reinforce pupil success and yield control to the pupil. Hallman (1967) felt that the marks of the creative classroom are self-initiated learning, non-authoritarian environment, over-learning, divergent problem-solving, deferred teacher intervention and pupil self-evaluation. He discussed the concept that the pupils must learn to be sensitive and the teacher must be there to assist the pupil in coping.

The Individually Prescribed Instructional system incorporates the means for self-initiation, self-direction, and self-evaluation. The efforts of the child are not held up to comparison against the rest of the class nor against a "normal" curve. His opportunity to fail is thus minimized. The efforts of the child are under his own guidance rather than the control of the teacher or the pressure of his classmates. The marks of the creative classroom, as Hallman (1967) delineates them, are met. A logical outcome of this should be a more positive self-concept, creative tendency, and attitude toward school.

PROCEDURE

A. Sample

The sample was comprised of the pupils and teachers from 16 elementary schools. Eight of the schools were IPI schools and eight were control schools. There were 150 IPI teachers and 145 control teachers. There were 773 third grade pupils from the IPI schools and 660 third grade pupils from the control schools. In the IPI schools, 2,048 middle level pupils (grades 4, 5, and 6) were tested while 1,673 middle level pupils were tested in the control schools. In addition, 463 parents of 4th and 5th grade IPI pupils and 475 4th and 5th grade control parents were queried.

B. Method

The third, fourth, fifth, and sixth grades from 8 pairs of schools were tested at the end of the school year. Tests were administered to the pupils and teachers. In addition, parents of 4th and 5th grade pupils completed an opinionaire. The tests were scored and analyzed in Philadelphia by Research for Better Schools, Inc.

C. Instrumentation

1. Teacher checklist

In assessing the affective domain of the teacher, we are asking what attitudes or emotional constraints are acting differently within the IPI class. To do this, we must reduce the classroom climate to its primary sources. This becomes five elements: (a) the teacher's perception of herself, (b) the teacher's perception of her pupils, (c) the teacher's perception of her interaction with her pupils,

(d) her perception of how the pupils are interacting among themselves, and (e) her perception of the aide who assists her. Combined, these five elements make up the teacher's perception of the classroom climate.

The form of the instrument itself is a semantic differential.

There are five subtests totalling 41 items.

2. Pupil Opinion Form

The Pupil Opinion Form is designed for pupils in grades 4 to 6 and contains 3 separate measures.

The first measure is a derivation of the Pennsylvania Assessment of Creativity Tendency (Rookey, 1971). It assesses the pupil's attraction toward ego-risk and independence. The test is a 39 item Likert-style attitude inventory.

The second measure assesses the pupil's self-concept. It is derived from a matrix of three levels and four factors.

The three levels are the three vantage points of self-perception: (1) the self as viewed by the self, (2) the self as the self believes other perceive the self, and (3) the self as it compares to others.

The four factors are the sources of situation or the logical facets wherein the opportunity for appraisal are met: (1) the physical being, (2) the intellectual being, (3) the emotional being, and (4) social being. The test is a 24 item Likert-style attitude inventory.

The third measure is an 8 item Likert-style attitude inventory designed to assess the pupil's attitude toward his school. It is a self-report of perceived attraction of peers, teachers, and activities.

3. Early Pupil Form

The Early Pupil Form is a shortened version of the Pupil Opinion Form. The answer format is reduced from a 5 point continuum to a 3 point continuum. The creative tendency measure is 16 items long. The self-

concept measure is 16 items long. The attitude toward school measure is 8 items long.

4. Parent Opinionnaire

The Parent Opinionnaire is a 20 item, 7 point Likert-style scale. It was designed to use the parent as an observer in assessing the development of behaviors that research indicates are related to motivation. It has been reported that these behaviors include self-direction, independence, perseverance, high tolerance of frustration, and good attitude toward school situations.

RESULTS

A. Teacher Attitude:

The teacher's checklist generates six scales: (1) perception of role, (2) perception of pupils, (3) perception of teacher-pupil interaction, (4) perception of pupil-pupil interaction, (5) perception of teacher aide, and (6) a total teacher attitude score. The means and standard deviations of the total IPI and total Control groups are listed in Table One. The results of a z-test between the IPI and control means are also listed in Table One.

TABLE 1
MEANS, STANDARD DEVIATIONS, AND z
BETWEEN TOTAL IPI AND CONTROL TEACHERS

Scale	z	<u>IPI:</u>			<u>CONTROL:</u>		
		N	Mean	Standard Deviation	N	Mean	Standard Deviation
Role	0.1529	150	50.70	9.52	142	50.87	9.54
Pupils	1.2712	150	38.31	9.30	142	36.94	9.16
Teacher-pupil	0.1922	150	26.32	4.80	142	26.21	5.02
Pupil-pupil	1.2542	150	20.01	4.83	142	19.31	4.74
Aide	6.8280**	150	17.34	3.30	142	14.04	4.81
Teacher Attitude	1.8535	150	153.18	26.59	142	147.37	27.15

** Significant beyond .01

As can be seen in Table One, the teachers' perception of the teaching role and the teacher-pupil interaction is almost identical in the total IPI and Control groups. The IPI teachers have a more positive total attitude, more positive perception of their pupils and the interaction among their pupils than the control teachers but not statistically significantly higher. The IPI teachers do have a statistically significantly more positive attitude toward their teacher-aides.

B. Parents

The parent questionnaire was completed by 463 parents of IPI pupils and 475 parents of control pupils. The pupils were all from the fourth and fifth grades. For the total IPI and Control groups, the IPI parent mean score was 103.68 and the control mean score was 98.66. A z-test between the means yielded a coefficient of 5.0225 which was significant beyond the .01 level.

C. Middle Level Pupils

The middle level pupils (4th, 5th, and 6th grade) were administered measures of creative tendency, self-concept, and attitude toward school. As can be seen in Table Two, the IPI pupils, as a total group, had significantly higher scores for all three measures than the control pupils.

TABLE 2
TOTAL GROUP MEAN SCORES FOR
IPI AND CONTROL MIDDLE LEVEL PUPILS

Attitude	z	IPI Mean	Control Mean
Creative Tendency	2.1538*	140.56	139.58
Self-Concept	4.1782**	79.97	78.47
Attitude Toward School	2.0430*	28.50	28.13

* Significant beyond .05

** Significant beyond ~~.01~~

D. Early Level Pupils

The early level pupils (3rd grade) were administered measures of creative tendency, self-concept, and attitude toward school. As can be seen in Table Three, there were two significant differences between the total IPI and total control group means. The control group pupils had a significantly higher attitude toward school. The IPI pupils had a significantly higher self-concept.

TABLE 3
TOTAL GROUP MEAN SCORES FOR
IPI AND CONTROL EARLY LEVEL PUPILS

Attitude	z	IPI Mean	Control Mean
Creative Tendency	1.0128	36.07	36.29
Self-Concept	2.0000*	18.71	19.09
Attitude Toward School	2.4066*	36.16	35.38

*Significant beyond .05

E. Instrument Reliability

The teacher, parent, and pupil instruments were assessed for reliability using the alpha coefficient procedures. The coefficients displayed in Table Four are all satisfactorily high. The total test and subtests of the Teacher Checklist are particularly satisfying. The lower coefficient of the creative tendency measure (third grade form) is expected, given the behavior of that young a group, the complex nature of the attitude, and the brevity of the measure.

TABLE 4
RELIABILITY COEFFICIENTS OF
ATTITUDE MEASURES

Measure	Sample Size	Alpha Coefficient
Teacher Subtest - Role	150	0.9024
Teacher Subtest - Pupils	150	0.9347
Teacher Subtest - Teacher to Pupil	150	0.9094
Teacher Subtest - Pupil to Pupil	150	0.8854
Teacher Subtest - Aide	150	0.8963
Teacher Attitude Checklist	150	0.9645
Parent Opinionaire	478	0.8188
Middle Level - Creative Tendency	2048	0.7807
Middle Level - Attitude Toward School	2048	0.7701
Middle Level - Self-Concept	2048	0.8316
Early Level - Creative Tendency	773	0.4491
Early Level - Attitude Toward School	773	0.8022
Early Level - Self-Concept	773	0.6932

DISCUSSION

A. Teacher Attitudes

The IPI and control teachers did not have a significantly different perception of their teaching roles. The z-test between the means yielded a 0.1529 which is obviously not significant.

Since the measure is of the semantic differential style, it is possible to use the items to depict the respondents. Both groups were very positive about their role as being happy, valuable, satisfying, needed, strong, effective, productive, involved, and meaningful. Both groups were very positive about their role as being professionally recognized, acting as a resource, autonomous, content, a helper, and instructional not clerical. Also, both groups were slightly negative toward their role as being rushed rather than having adequate time.

The IPI and control teachers did not have a significantly different attitude toward their pupils. The z-test between the means yielded a 1.2712 which is not significant.

Considering the items, both control and IPI teachers had a very positive attitude toward their pupils as happy and liking school. They were both positive about their pupils as being confident, eager, excited, self-controlled, content, dependable, resourceful, persistent, productive, and as thinking critically. The IPI teachers had two notably more positive responses than the control in terms of pupils being independent and self-directed.

The IPI and control teachers did not have a significantly different perception of the teacher-pupil relationship as shown by a

nonsignificant z-test of 0.1922.

Both IPI and control teachers had a very positive attitude depicting the teacher-pupil relationship as active, strong, productive, pleasant, valuable, interesting, adequate, and satisfying.

There was no significant difference ($z = 1.2542$) between the control and IPI teachers' perception of the pupil to pupil interaction. Both groups had a positive perception depicted as cooperative, competitive, pleasant, productive, peaceful, helpful, and kind.

The IPI teachers did have a significantly more positive perception of the teacher aide's role than the control teachers ($z = 6.8280$). The IPI teachers were more inclined to depict the aide's role as productive, necessary, active, valuable, and desirable.

B. Parents

Analysis of the responses to the Parent Opinionnaire showed a highly significant difference between IPI and non-IPI pupils as reported by the parent groups. The z of 5.0225 was significant beyond the .01 level.

If, as the analysis indicates, IPI pupils are more highly motivated, more self-directed, and more independent than non-IPI pupils, then it would seem that IPI does indeed have important educational effects other than those more commonly measured in assessing program effects. The responses from the parent groups are substantiated by the very positive responses from IPI teachers on items concerning the independence and self-direction of pupils.

C. Middle Level Pupils

The IPI pupils had significantly higher scores on all three

affective measures than the control pupils. The three measures were creative tendency, self-concept, and attitude toward school.

The data support the hypothesis that Individually Prescribed Instruction has a positive effect on pupil self-concept. The IPI curriculum would be expected to have this effect since its primary aspects are a rejection of student-failure and a shifting of the locus of control from the teacher to the pupil. The pupil who does not fail is not required to integrate the trauma of a normative sociopolitical system with his image of self-worth. Likewise, the pupil who has the options and responsibilities of choice both on the temporal and spatical axes is able to judge his social role in the same terms as he judges the roles of his adult models.

The data also support the hypothesis that Individually Prescribed Instruction has a supportive effect on pupil creative tendency. Given that creative tendency is best explained as a willingness to risk ego and a desire to direct oneself, it follows that IPI would be supportive. The IPI configuration allows the pupil to question without facing peer pressure and without being penalized for deviating from temporal algorithm of a teacher's weekly lesson plan.

The finding that IPI pupils have a significantly higher attitude toward school is also not surprising. The reduction of a person to a number is a degrading experience. Fortunately, the IPI system allows a pupil to be a unique individual who in turn comes to appreciate rather than deprecate the learning situation.

D. Early Level Pupils

There was no significant difference between control and IPI pupils on creative tendency at third grade. The control pupils had a significant higher attitude toward school. The IPI pupils had a higher

self-concept.

It would seem that the effects of IPI are not felt at the lower grade level as much as the upper. It could further be hypothesized that the scholastic rigors of IPI make it less attractive to younger children than a traditional classroom system.

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